

REMARKS

This paper responds to the Office Action dated May 2, 2006.

5 **Office Action Paragraph 1**

The Examiner states (paragraph 1, page 2) that the applicant amended claims on October 2, 2005. The Examiner is respectfully requested to note that no amendment occurred on that day. The Examiner is further respectfully requested to note that the claims pending on October 2, 2005 had not been amended since at least December 22, 2004.

Office Action Paragraph 4

The Examiner expresses the view that claims 13 and 17 are not enabled by the specification. Claims 13 and 17 were in the application when it was filed on December 27, 2000. By an amendment set forth above, the text of originally filed claims 13 and 17 has been added to the specification at page 20, following line 5. This is not, of course, adding new matter, because the text was in the application on the day it was filed. It is suggested that this overcomes any concern as to whether the specification now contains enabling language.

20 **Office Action Paragraph 5**

The Examiner expresses the view that the specification as filed did not provide a written description of the invention set forth in claims 13 and 17. Claims 13 and 17 were in the application when it was filed on December 27, 2000. By an amendment set forth above, the text of originally filed claims 13 and 17 has been added to the specification at page 20, following line 5. This is not, of course, adding new matter, because the text was in the application on the day it was filed. It is suggested that this overcomes any concern as to whether the specification now contains a written description of the invention set forth in claims 13 and 17.

30 **Office Action Paragraph 7**

The Examiner expresses the view that claims 13 and 17 are not directed to statutory subject matter. The undersigned has carefully considered the guidance provided in Section 2106 of the Manual of Patent Examining Procedure.

Similarly, computer programs claimed as computer listings per se, i.e., the descriptions or expressions of the programs, are not physical "things." They are neither computer components nor statutory processes, as they are not "acts" being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer which permit the computer program's functionality to be realized. In contrast, a claimed **computer-readable medium** encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. Accordingly, it is important to distinguish claims that define descriptive material per se from claims that define statutory inventions.

(Emphasis added.) As such, claims 13 and 17 have each been amended to recite the preferred language of "computer-readable medium". It is suggested that this overcomes any concern as to whether the claims are directed to statutory subject matter.

Office Action Paragraphs 9-14

The Examiner expresses the view that all pending claims are supposedly obvious in view of a two-way combination of US Pat. No. 6,078,948 to Podgorny et al. ("Podgorny") and US Pat. No. 6,804,818 to Codella et al. ("Codella"). In response, the applicant will:

- briefly review the disclosure relating to the invention;
- briefly review the content of Podgorny;
- discuss the claims one by one in connection with the cited two-way combination.

The disclosure relating to the invention

The invention discloses a messaging system for storing and forwarding messages from and to message clients. In order to:

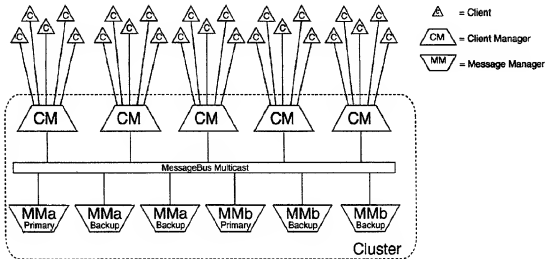
1. accommodate a very large number of message clients, and
2. provide redundancy in the case of component failure,

the functionality of the message server is spread out over a server cluster, that is, a number of individual machines called nodes.

The server cluster comprises client manager nodes that handle communication with the message clients, and message manager nodes for storing and distributing messages. Thus, the server is a server cluster embodying a two-tier structure. The nodes in the server cluster are arranged to communicate by

a multicast channel.

The structure of the inventive system is exemplified by the following graph (Figure 1):



5 The elements of the structure are defined in the independent claims as follows (reference is made to claim 1, but the argumentation applies *mutatis mutandis* to claims 7, 13, and 17).

This inventive structure makes it possible to:

- distribute a multitude of clients over separate client manager nodes,
- distribute the message handling over separate message manager nodes, and

- have each client manager node and each message manager node communicate with all other nodes.

Thanks to this, it further is possible to implement redundant message manager nodes, which in turn allows for continued operation in case one message manager node fails.

The content of Podgorny

Podgorny shows a framework for forming virtual communities having virtual rooms with collaborative sessions. A mechanism is provided for arranging communication between applications running on different clients. For this purpose, a demon program is executed on the client. The demon is downloaded as part of a web page and then may communicate (see e.g. Abstract, Fig. 2):

1. with client applications running on the client system (and having been launched by the demon),
2. with control logic running on the client system (and having been downloaded by the demon), and
3. with a remote server.

The demons are part of the clients. The server comprises a room manager which in turn comprises several rooms. Fig. 12 accordingly shows a server logic 240 comprising rooms 1240a,b,c (see also col. 15, lines 60-65). A room module 1240 in turn comprises several user modules 1320a,b,c communicating with associated demons and with the room's message distribution module 1350 (Fig. 13 and col. 17, lines 58-62). Only clients connected to the same room may thus communicate with one another.

The communication between the message distribution module 1350 and the user modules 1320a,b,c may be effected in the following manner (col. 17, lines 61 col. 18, lines 27):

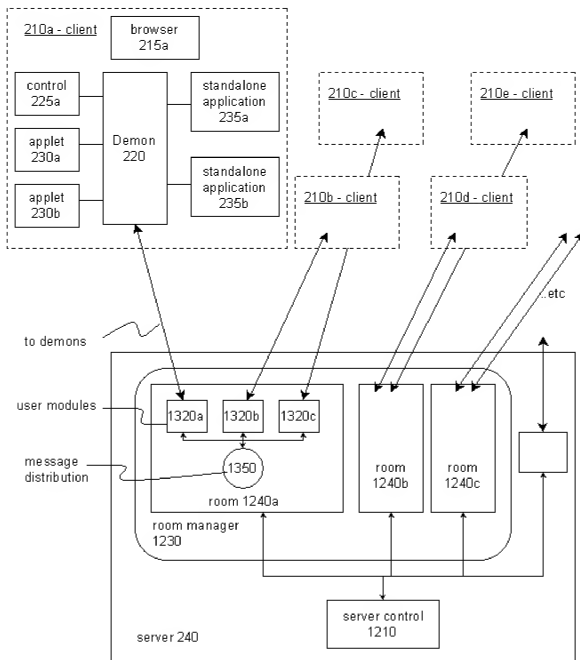
1. incoming messages from a user module 1320a,b,c being forwarded by the message distribution module 130 to another module, or
2. outgoing messages being broadcast or unicast to one or more user modules 1320a,b,c.

The Podgorny structure is shown in the enclosed overview diagram, which is a combination of the relevant parts of Figures 2, 12 and 13.

US 6,078,948 Podgorny et al.

Synopsis of system Structure, combined from

- FIG. 2 (client structure),
- FIG. 12 (server) and
- FIG. 13 (room, upside down)



This structure has the following features: Each client 210 communicates with an associated user module 1320 (Only one client 210a is shown with its internal structure, the other clients have the same internal structure). A set of user modules 1320a,b,c is part of the same room 1240a and communicates with the same message distribution module 1350. The internal structure of further rooms 1240b,c is similar, each room being in communication with a number of clients (e.g. room 1240b with clients 210d,e). The server 240 can accommodate and manage several separate rooms 1240a,b,c, but communication between rooms is not contemplated.

10 Individual machines in the Podgorny system are the clients and the server.

Differences

It is thus perhaps instructive to compare and contrast the disclosure relating to the invention with the disclosure of Podgorny. This will be discussed now in general terms, and then each of the pending independent claims will be discussed in detail in connection with Podgorny. Finally, some of the dependent claims will also be discussed in some detail in connection with Podgorny.

First, the invention claims the message system comprising a server cluster comprising client manager nodes and message manager nodes. Podgorny shows a monolithic server and does not give an indication that or how the server should be implemented as a server cluster.

Second, even if the above argument were disregarded (e.g. by considering the clients to be part of the server cluster), the structure of the system disclosed in Podgorny et al. nevertheless differs from the inventive structure in the following manner: Whereas individual elements or combinations of elements from Podgorny and the present invention may indeed be matched, the entire structure as claimed in the invention is not disclosed.

Such individual elements are identified and matched in the Office Action as follows:

- On page 5, first bullet point, Podgorny's demon logic is identified with the client manager nodes of the invention.
- In the next bullet point on page 5, a number of features are alleged to be relevant to client manager nodes (the claim text beginning with "each client manager node of said group of client

manager nodes comprising") .

However, the text quoted from Podgorny at page 4, paragraph 10, says:

5 Podgorny teaches a system that "includes logic to establish communication connections with demons..."

These words, when quoted in the original context (Podgorny, column 2, lines 52-52), states that "**The server** includes logic to establish communication connections with demons..."

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(Emphasis added.) Therefore, these features are features of **the server** and not features of a demon, which previously has been identified with a client manager node. Thus, it is respectfully suggested that the passage quoted from Podgorny does not disclose the quoted client manager node features.

15 In following bullet points in the Office Action, it seems that the Podgorny server is identified with the message manager nodes of the invention (see e.g. Office Action page 6, the last four lines).

However, these individual elements from Podgorny cannot be assembled consistently to form the structure according to the invention. It turns out that no matter how the Examiner attempts to match up
20 elements of Podgorny with limitations in the claims (for example Claim 1), the match-up does not work.

Different variants for matching these elements shall now be discussed, and the ensuing contradictions shall be shown. It will be helpful if reference is made to the enclosed overview diagram of Podgorny
25 and to the above figure showing the invention.

Consider a first way to try to match elements of Podgorny to the claim limitations.

First way to match:

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- demon = client manager node
- server = message manager node

Ensuing contradiction 1: Claim 1 features a multicast communication channel between the client
35 manager nodes ("demon") and message manager nodes ("server"). In Podgorny, this layer of

communication is denoted as "to demons". These connections are the client-server connections and are, by their nature, one-to-one connections. Broadcasting does not make sense here and is not disclosed either: The pertinent section in Podgorny that mentions broadcasting (col. 17, line 58 to col. 18, line 27) refers to the communication between user modules 1320 and message distribution module 1350, that is, to communication within the server.

Ensuing contradiction 2: Claim 1 claims a plurality of message manager nodes, whereas Podgorny discloses only a single server.

10 Ensuing contradiction 3: Podgorny shows each demon being located in and therefore associated with a single client. The invention claims (emphasis added)

15 each client manager node of said group of client manager nodes comprising means for connecting to clients, means for managing client connections, means for forwarding messages received from message producing clients to message manager nodes, and means for forwarding messages received from message manager nodes to message consuming clients,

that is, with clients and connections in the plural form! As is evident from drawing 1 of the present application, this capability of one client manager to handle several clients allows to serve a multitude of clients, whereas Podgorny requires one user module for each client.

Therefore, the claimed structure of the invention is not disclosed by this interpretation of the terms client manager node/ message manager node.

25 There are other ways in which one could attempt to match up elements of Podgorny with the claim limitations. Although these other ways were not raised or suggested in the Office Action, it may nonetheless be helpful to explore them and to point out their ensuing contradictions as well.

Second way to match:

- 30
- demon = client manager node
 - user module = message manager node

Ensuing contradictions 1 and 3: the same as above.

35 Third way to match:

- user module = client manager node

- message distribution = message manager node

Ensuing contradiction 1: Podgorny shows each user module being associated, by definition, with a single client. The invention claims clients and connections in the plural form, as already described above (contradiction 3 for the first way to match).

Ensuing contradiction 2: Podgorny shows only a single message distribution module 1350 that communicates with a group of user modules. The invention claims that there is a plurality of message manager nodes (that communicates with the client manager nodes by means of a multicast communication channel).

Therefore, there is no way, regardless of how the nodes of the invention are matched to one entity or the other of the Podgorny structure, in which the complete structure of the invention can be consistently mapped onto the Podgorny structure.

The claims

With regard to obviousness, it therefore follows, for claim 1, that ...

... according to the first way to match discussed above (i.e. demon = client manager node, server = message manager node), Podgorny does not disclose:

1. each client manager node (demon) of said group of client manager nodes comprising means for connecting to clients, means for managing client connections, means for forwarding messages received from message producing clients to message manager nodes (server), and means for forwarding messages received from message manager nodes (server) to message consuming clients.
2. the server cluster further containing a group of message manager nodes (server) being configured differently from the client manager nodes (demons), said group of message manager nodes comprising a plurality of message manager nodes (server).
3. said messages comprising a destination information addressing a destination, said destination being at least one of a queue and a topic.
4. the system further comprising communication channel means for providing a multicast communication channel for forwarding messages between said group of client manager nodes (demons) and said group of message manager nodes (server).

With regard to point 1, it would be contrary to the teaching of Podgorny to connect the demon ("client manager node") to several clients, since the demon is running on a single client and by definition serves only this client. It also is physically impossible, since the clients reside at different locations and are

arranged to communicate through the server alone (which is the purpose of the entire system).

With regard to point 2, since the server is identified with the message manager node, Podgorny does not suggest providing multiple servers and how to incorporate them into a complete system.

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With regard to point 3, the examiner has already admitted that Podgorny does not show this feature.

With regard to point 4, since each demon ("client manager node") is assigned to a single client, Podgorny discloses point-to-point communication between the demon (on behalf of the client) and the server ("message manager node") and does not disclose multicasting. Furthermore, since all communication has to run through the server ("message manager node"), Podgorny teaches away from using multicasting, which would allow demons to communicate directly with each other.

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... according to the second way to match (i.e. demon = client manager node, user module = message manager node), Podgorny does not disclose

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1. each client manager node (demon) of said group of client manager nodes comprising means for connecting to clients, means for managing client connections, means for forwarding messages received from message producing clients to message manager nodes (user module), and means for forwarding messages received from message manager nodes (user module) to message consuming clients.
2. said messages comprising a destination information addressing a destination, said destination being at least one of a queue and a topic.
3. the system further comprising communication channel means for providing a multicast communication channel for forwarding messages between said group of client manager nodes (demons) and said group of message manager nodes (user module).

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With regard to point 1, the same as for the first way to match holds.

With regard to point 2, the examiner has already stated that Podgorny does not show this feature.

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With regard to point 3, since each demon ("client manager node") is assigned exclusively to a single client, and communicates only with an associated user module ("message manager node"), Podgorny discloses point-to-point communication between the demon (on behalf of the client) and the user module ("message manager node") and does not disclose multicasting. Furthermore, since each user module ("message manager node") is assigned exclusively to one demon or client, Podgorny teaches away from using multicasting.

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... according to the third way to match (i.e. user module = client manager node, message distribution = message manager node), Podgorny does not disclose

1. each client manager node (user module) of said group of client manager nodes comprising means for connecting to clients, means for managing client connections, means for forwarding messages received from message producing clients to message manager nodes (message distribution), and means for forwarding messages received from message manager nodes (message distribution) to message consuming clients.
2. the server cluster further containing a group of message manager nodes (message distribution) being configured differently from the client manager nodes (user modules), said group of message manager nodes comprising a plurality of message manager nodes (message distribution).
3. said messages comprising a destination information addressing a destination, said destination being at least one of a queue and a topic.

With regard to point 1, since each demon ("client manager node") is assigned exclusively to a single client, Podgorny does not disclose or suggest the demon ("client manager node") connecting to a plurality of clients, but rather teaches away from such an interpretation.

With regard to point 2, Podgorny discloses only a single message distribution module ("message manager node"). Podgorny does not disclose or suggest to provide a plurality of message distribution modules, and further does not say how a system with a plurality of message distribution modules would be structured and operates.

With regard to point 3, the examiner has already stated that Podgorny does not show this feature.

In summary, regardless of which way some features of Podgorny are matched with the claim features, and even if the teaching of Podgorny were combined with that of Codella, the remaining features would still not be suggested.

Reconsideration is requested with respect to Claim 7 for the same reasons as were just discussed with respect to Claim 1.

Reconsideration is requested with respect to Claim 13 for the same reasons as were just discussed with respect to Claim 1.

With regard to claim 17, Podgorny does not disclose on the one hand a computer serving as a message manager node in a server cluster and communicating with a client manager across a multicast communications channel: the only broadcasting according to Podgorny takes place from the message

distribution 1350 to the user modules 1230a,b,c, that is, inside the server itself. If the message manager node is identified with Podgorny's server 240 and the client manager is identified with Podgorny's demon 220, then the contradiction arises that according to Podgorny the communication between the server and the demons by its very nature is point-to-point, and not multicast. Reconsideration is requested.

With regard to claim 21, it is noted that its last paragraph reads:

wherein at least two message manager nodes are configured to comprise identical destinations, each of which is arranged to maintain a redundant copy of a message received in the course of the same multicast transmission from a client manager to said destination, said destination being at least one of a queue and a topic.

The examiner is respectfully invited to point out where in the cited prior art this feature is disclosed.

The applicant holds that this is not the case, and that this further feature allows the message server cluster to operate in a robust manner: in the case of failure of a message manager node, the backup message manager node may take over, or in the case the server cluster is split in separate parts (by a break in communications), the primary and the backup message manager node may operate independently and later again re-synchronise their status.

Dependent claims

Claim 6: In addition to the arguments put forth with regard to claim 1, it is noted that Podgorny does not disclose:

a plurality of message manager nodes is provided, wherein at least two message manager nodes are configured to contain identical destinations to maintain one or more identical, redundant copies of stored data received in the same multicast transmission from a client manager as the original copy of stored data.

This holds for all three ways to match message manager nodes with elements of the Podgorny system (i.e. with the server, user modules or with the message distribution). It is requested that the Examiner point out where in the cited references this limitation may be found, or in the alternative to withdraw the rejection.

Claim 9: This claim addresses, as does claim 6, the operation of backup message managers. Thus the argument presented with respect to claim 6 is repeated with respect to claim 9. It is requested that the

Examiner point out where in the cited references this limitation may be found, or in the alternative to withdraw the rejection.

Claim 10: nowhere in the prior art is it disclosed or suggested to associate a message manager with a channel rank and selecting, upon failure of a primary message manager the associated backup message manager having the lowest or highest channel rank changes its status and becomes a primary message manager. It is requested that the Examiner point out where in the cited references this limitation may be found, or in the alternative to withdraw the rejection.

10 Claim 11 is:

The method of claim 7, wherein, if the message size exceeds a maximum message size value, said message to be transmitted between said message client and said message manager is fragmented by the message manager or by the message client and sent as a separate command.

15 It is requested that the Examiner point out where in the cited references this limitation may be found, or in the alternative to withdraw the rejection.

Claim 12 is:

20 The method of claim 1, wherein at least two multicast communication channels are present, and wherein either every client manager node is connected to all of said multicast communication channels and every message manager node is connected to only one of said multicast communication channels or every message manager node is connected to all of said multicast communication channels and every client manager node is connected to only one of said multicast communication channels.

25 It is requested that the Examiner point out where in the cited references this limitation may be found, or in the alternative to withdraw the rejection.

30 Claim 14 is:

35 The computer-readable medium of claim 13, wherein said computer readable code means for enabling the computer to establish a connection to a message client comprise means employing a library written in the Java language and conforming to the Java Message Service API.

It is requested that the Examiner point out where in the cited references this limitation may be found, or in the alternative to withdraw the rejection.

40 Claim 15 is:

The computer-readable medium of claim 13, wherein said computer readable code means comprise the following elements: a core module comprising session tasks and session command dispatchers, a client I/O module for routing commands, sending messages to a message client and receiving messages from a message client, said client I/O module comprising command routing means and connection management means, and a cluster I/O module for routing commands, sending messages to a message manager and receiving messages from a message manager, said client I/O module comprising command routing means and channel management means.

It is requested that the Examiner point out where in the cited references these limitations may be found, or in the alternative to withdraw the rejection.

Claim 16 is:

The computer-readable medium of claim 13, wherein said computer readable code means comprise configuration data, means for creating a digest of said configuration data and means for sending said digest to other client manager nodes and means for receiving a configuration data digest from other client manager nodes, as well as means for acquiring configuration data from other client manager nodes in case the digest of its configuration data and a received configuration data digest do not match.

It is requested that the Examiner point out where in the cited references these limitations may be found, or in the alternative to withdraw the rejection.

Claim 17 is:

A computer-readable medium having computer readable program code means embodied therein for enabling a computer to serve as a message manager node in a server cluster, the computer-readable medium comprising computer readable code means for enabling the computer to communicate with at least one client manager across a multicast communication channel, to receive message data from said client manager node, said message data comprising a destination information addressing a destination, depending on the destination information, to store said message data, to maintain a list of client subscriptions, and to compare the list of client subscriptions to available messages, and, when there is a match, for transmitting message information with a client information to a client server across said multicast communication channel.

Claim 18 is:

The computer-readable medium of claim 17, wherein said computer readable code means comprise the following elements: a core module comprising a destination manager task, an admin manager task, a config distributor task, a reliability manager task an destination tasks, at least one destination command dispatcher, and a cluster I/O module for routing commands,

sending messages to a client manager and receiving messages and requests from a client manager, said client I/O module comprising command routing means and channel management means.

- 5 It is requested that the Examiner point out where in the cited references these limitations may be found, or in the alternative to withdraw the rejection.

Claim 19 is:

- 10 The computer-readable medium of claim 17, wherein said computer readable code means comprise configuration data, means for creating a digest of said configuration data and means for sending said digest to other message manager nodes and means for receiving a configuration data digest from other message manager nodes, as well as means for acquiring configuration data from other message manager nodes in case the digest of its configuration data and a
15 received configuration data digest do not match.

It is requested that the Examiner point out where in the cited references these limitations may be found, or in the alternative to withdraw the rejection.

- 20 Respectfully submitted,

/s/

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